

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Brad A. Lovett                      Group Art Unit: 1782  
Serial No.: 10/588,710                      Examiner: Jacobson, Michele Lynn  
Filed: 08/07/2006                      Confirmation No.: 4638  
Title: AROMATIC POLYAMIDE TUBING FOR VEHICLE APPLICATIONS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF**

Dear Sir:

Appellant submits its Brief subsequent to the filing of a Notice of Appeal on May 14, 2010. Fees in the amount of \$540 for the Appeal brief and \$130 for a one month extension of time may be charged to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

**Real Party in Interest**

The real party in interest in this application is Cooper Technology Services, LLC.

**Related Appeals and Interferences**

There are no related appeals or interferences.

**Status of Claims**

The application included claims 1-38. Claims 2-3, 7-9, 20, 22, and 26-30 were previously cancelled. Claims 14-19, 24-29, 21, 23-25, and 34 were withdrawn. Claims 1, 4-6, 10-13, 31-33, and 35-38 stand rejected and are appealed.

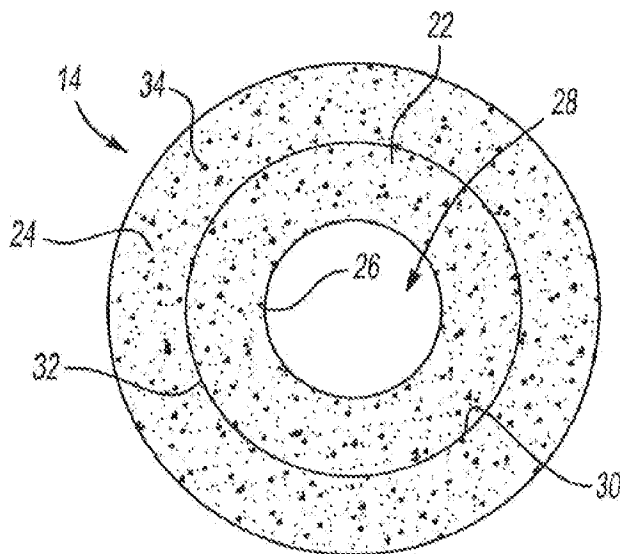
### **Status of Amendments**

All amendments have been entered.

### **Summary of Claimed Subject Matter**

The application includes a single independent claim, claim 1, which is summarized as follows.

As shown below, in Figure 3 from the application, independent claim 1 is directed to a vehicle tubing 14 [see page 2, lines 9-11]. The tubing 14 has an inner layer 22, which is electrically conductive and is constructed of an aromatic polyamide [see page 5, lines 15-26]. The tubing 14 also has an outer layer 24, which is adjacent to the inner layer [see page 5, lines 15-18]. The outer layer 24 is also aromatic polyamide [see page 5, lines 18-20]. The aromatic polyamide of each layer 22, 24 comprises amide groups and aromatic rings, with at least 50% of the amide groups being attached to aromatic rings [see page 5, lines 27-30].



**Fig-3**

### **Grounds of Rejection to be Reviewed on Appeal**

- I. Whether claims 1, 4-6, 10-12, 31-33, and 35-37 were properly rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,428,866 to Jadamus (hereinafter “Jadamus”).
- II. Whether claims 13 and 38 were properly rejected under 35 USC §103(a) as being unpatentable over Jadamus in view of U.S. patent 3,538,209 to Hegler (hereinafter “Hegler”).

### **Argument**

#### **I. Rejection of Claims 1, 4-6, 10-12, 31-33, and 35-37 under §103(a)**

##### **All Claims**

Claim 1 of the present application is directed to “A vehicle tubing comprising: an inner layer of aromatic polyamide forming a tubing conduit, wherein the inner layer of aromatic polyamide is electrically conductive; and an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide, where the aromatic polyamide of the inner layer and the outer layer include amide groups and aromatic rings, and at least 50% of the amide groups are attached to aromatic rings.” The feature that “at least 50% of the amide groups are attached to aromatic rings” is directed to the chemical structure of the aromatic polyamides out of which the inner and outer layers are constructed.

The Supreme Court defined the standard for establishing obviousness in *KSR v. Teleflex*. Obviousness under *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 82 U.S.P.Q.2d 1385 (2007) requires a reason for combining the elements of the prior art in the manner claimed. The Examiner must provide an articulated reasoning with some rational underpinning to support the conclusion of obviousness, and the reasoning should be made explicit. *Id.* at 1395.

The Examiner relies on the optimization of a result-effective variable and alleged common knowledge to purportedly establish obviousness. In order to establish a result-effective

variable the Examiner must disclose “a variable, [the variation of] which achieves a recognized result.” (See MPEP 2144.05) Furthermore, MPEP 2144 requires the Examiner to provide evidence, beyond mere assertions, that the disclosed variable meets this definition. The Examiner relied on Jadamus to establish obviousness, and argued that the chemical structure of the aromatic polyamide is a result-effective variable and optimizing the percentage of amide groups attached to aromatic rings within the chemical structure would therefore be obvious. Jadamus discloses a vehicle tubing with two polyamide layers. Jadamus does not disclose or teach any chemical compositions of the aromatic polyamide, nor has the Examiner asserted that Jadamus discloses or teaches any chemical composition.

In the Amendment After Final, dated April 19, 2010, the Appellant requested that the Examiner provide a supporting reference if the Examiner wished to maintain that the claimed feature was a result-effective variable. The Appellant made this request on the basis that the cited Jadamus reference does not explicitly support such a conclusion. Notably, the Examiner provided no evidence in support of his assertion that Jadamus contains a result-effective variable. Therefore, the Examiner failed to meet his burden under MPEP 2144 to establish the claimed feature of “at least 50% of the amide groups are attached to aromatic rings,” and as such, treating the feature as a result-effective variable is improper.

The Examiner additionally argues, based on contested common knowledge, that in an aromatic polyamide all of the amide groups are attached to aromatic rings. The MPEP states that “if applicant challenges a factual assertion as not properly officially noticed or not properly based upon common knowledge, the Examiner must support the finding with adequate evidence” (MPEP 2144.03(C)). Furthermore, the MPEP defines “adequate evidence” as requiring “documentary evidence in the next Office Action” (MPEP 2144.03(C)). The Examiner provided no support for his alleged common knowledge. The Appellant contested the statement of common knowledge at the first opportunity in the Amendment After Final, dated April 19, 2010. In the Examiner’s Advisory Action, dated May 6, 2010, the Examiner provided no evidentiary support for the purported common knowledge. Furthermore, in response to the Appellant’s challenging of official notice, the Examiner merely reiterated his assertion of unsupported

common knowledge. Since the Appellant challenged the Examiner's alleged common knowledge, and the Examiner failed to provide support for the alleged common knowledge, the Examiner's reliance on the alleged common knowledge is improper under MPEP 2144.03(c) and the rejection should be reversed.

Furthermore, the particular rejections presented by the Examiner are directed toward the total quantity of aromatic polyamides in the vehicle tubing rather than to the chemical composition of the aromatic polyamides as is claimed. The Examiner alleges that it is obvious to vary the quantity of aromatic polyamide present in the outer layer of Jadamus and thereby optimize barrier properties and strength. Varying the *amount* of aromatic polyamide present in the outer layer bears no connection to the percentage of amide groups attached to aromatic ring in *the chemical structure* of the aromatic polyamide itself because the percentage of amide groups attached to aromatic rings would be the same regardless of the amount of aromatic polyamide present in the outer layer. *Prima facie* obviousness has not been established because the Jadamus reference does not disclose or teach the claimed chemical structure.

Accordingly, the Examiner has not established *prima facie* obviousness and the rejection should be reversed.

## **II. Rejection of Claims 13 and 38 under §103(a)**

### **Claims 13 and 38**

Claims 13 and 38 recite the limitation found in claim 1 of “an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide, where the aromatic polyamide of the inner layer and the outer layer include amide groups and aromatic rings, and at least 50% of the amide groups are attached to aromatic rings.” As described above in section I regarding claims 1, 4-6, 10-12, 31-33 and 35-37, the Examiner has failed to properly establish the presence of a result-effective variable in Jadamus, and has failed to support his purported common knowledge. The Examiner relies on the addition of Hegler solely to illustrate corrugation in the tubing. Therefore adding the teachings of Hegler to Jadamus does not resolve the above noted issue with regard to independent base claim 1 and Jadamus. Accordingly, Jadamus in view of Hegler does

not establish *prima facie* obviousness of claims 13 and 38, and the rejection should be reversed.

**CLOSING**

For the reasons set forth above, the final rejection of claims 1, 4-6, 10-12, 31-33, and 35-37 are improper and should be reversed.

Respectfully submitted,

**CARLSON, GASKEY & OLDS, P.C.**

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## **CLAIMS APPENDIX**

1. A vehicle tubing comprising:
  - an inner layer of aromatic polyamide forming a tubing conduit, wherein the inner layer of aromatic polyamide is electrically conductive; and
  - an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide, where the aromatic polyamide of the inner layer and the outer layer include amide groups and aromatic rings, and at least 50% of the amide groups are attached to aromatic rings.
4. The vehicle tubing as recited in Claim 1, wherein each of the outer layer of aromatic polyamide and the inner layer of aromatic polyamide includes a layer thickness that together define a total thickness, and the thickness of the outer layer of aromatic polyamide comprises between approximately 50% and 95% of the total thickness.
5. The vehicle tubing as recited in Claim 1, including an intermediate thermoplastic layer located between the inner layer of aromatic polyamide and the outer layer of aromatic polyamide.
6. The vehicle tubing as recited in Claim 1, wherein the inner layer of aromatic polyamide includes an outer surface and the outer layer of aromatic polyamide includes an inner surface, and the outer surface of the inner layer of aromatic polyamide contacts the inner surface of the outer layer of aromatic polyamide.
10. The vehicle tubing as recited in Claim 1, wherein the aromatic polyamide of the inner layer of aromatic polyamide and the outer layer of aromatic polyamide include at least one of an impact-modifying agent, a heat-stabilizing agent, and a color pigment.
11. The vehicle tubing as recited in Claim 1, wherein only the inner layer of aromatic polyamide of the tubing includes an electrically conductive material.

12. The vehicle tubing as recited in Claim 33, wherein the electrically conductive material includes at least one of carbon powder, carbon fiber, carbon nanotubes, metal fiber, metal powder, and mixtures thereof.
13. The vehicle tubing as recited in Claim 1, wherein the outer layer of aromatic polyamide includes a corrugated outer surface and the inner layer of aromatic polyamide is non-corrugated.
14. A vehicle tubing comprising:  
a tubing including a layer of aromatic polyamide defining a conduit, the layer of aromatic polyamide including a corrugated outer surface section.
15. The vehicle tubing as recited in Claim 34, wherein the inner layer of aromatic polyamide includes a corrugated inner surface section and a corrugated outer surface section that corresponds to the corrugated outer surface section of the outer layer of aromatic polyamide.
16. The vehicle tubing as recited in Claim 34, wherein the inner layer of aromatic polyamide includes a non-corrugated inner surface section and a corrugated outer surface section that corresponds to the corrugated outer surface section of the outer layer of aromatic polyamide.
17. The vehicle tubing as recited in Claim 34, wherein the tubing includes a length, the inner layer of aromatic polyamide has a first wall thickness and the outer layer of aromatic polyamide has a second wall thickness, and one of the first wall thickness and the second wall thickness is essentially constant over the length of the tubing and the other of the first wall thickness and the second wall thickness changes over the length of the tubing.



18. The vehicle tubing as recited in Claim 34, wherein the outer layer of aromatic polyamide includes a non-corrugated outer surface section adjacent to the corrugated outer surface section along a length of the tubing.

19. The vehicle tubing as recited in Claim 18, further including alternating non-corrugated outer surface sections and corrugated outer surface sections along the length of the tubing.

21. A method of resisting permeation of a fluid through a tubing wall comprising the steps of:  
extruding an inner layer of aromatic polyamide to form a tubing conduit;  
extruding an outer layer of aromatic polyamide coaxially with the inner layer of aromatic polyamide; and  
bonding the outer layer of aromatic polyamide to the inner layer of aromatic polyamide.

23. The method as recited in Claim 21, including the step of bonding the outer layer of aromatic polyamide to the inner layer of aromatic polyamide with an intermediate thermoplastic layer located there between.

24. The method as recited in Claim 21, including the step of forming a corrugated outer surface section on the outer layer of aromatic polyamide.

25. The method as recited in Claim 21, including the step of adding at least one of carbon powder, carbon fiber, carbon nanotubes, metal fiber, metal powder, heat-stabilizing agent, impact-modifying agent, and mixtures thereof to the aromatic polyamide used to extrude the inner layer of aromatic polyamide.

31. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes polyvinylidene fluoride, ethylene chlorotrifluoroethylene, ethylene tetrafluoroethylene, polyamide, modified polyamide, polyolefin, ethylene vinyl alcohol, polyester, polybutylene naphthalate, or combinations thereof.

32. The vehicle tubing as recited in Claim 10, wherein the aromatic polyamide of inner layer of aromatic polyamide and the outer layer of aromatic polyamide includes an impact-modifying agent and a heat-stabilizing agent.
33. The vehicle tubing as recited in Claim 11, wherein the inner layer of aromatic polyamide has an electric surface resistivity between approximately  $10^2$  and  $10^7$  ohms/square.
34. The vehicle tubing as recited in claim 14, wherein the layer of aromatic polyamide comprises an inner layer of aromatic polyamide, and the tubing further comprises an outer layer of aromatic polyamide adjacent the inner layer of aromatic polyamide.
35. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes ethylene chlorotrifluoroethylene.
36. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes polyamide.
37. The vehicle tubing as recited in claim 5, wherein the intermediate thermoplastic layer includes polybutylene naphthalate.
38. The vehicle tubing as recited in claim 13, wherein the outer layer of aromatic polyamide includes alternating corrugated and non-corrugated sections.

## **EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.